

WHAT IS CLAIMED IS: Double-click for Instructions

1. 1. A method for quantizing information, comprising:
 2. generating a first pulse stream containing at least one pulse and a plurality of zero values; and
 4. convolving the first pulse stream with a second signal to produce a third signal, wherein the step of convolving does not multiply at least one zero value of the first pulse stream with a respective value of the second signal.
 2. 2. The method of claim 1, wherein the step of convolving does not multiply a substantial number of zero values of the first pulse stream with respective values of the second signal.
 3. 3. The method of claim 2, wherein the step of convolving does not multiply essentially all of the zero values of the first pulse stream with respective values of the second signal.
 4. 4. The method of claim 3, wherein the step of convolving only multiplies the pulses in the first pulse stream with respective values of the second signal.
 2. 5. The method of claim 4, wherein each of the pulses of the first pulse shown has a value of the one of +1 and -1.
 1. 6. The method of claim 4, wherein the quantization is based on a multipulse-maximum likelihood quantization (MP-MLQ) protocol.
 2. 7. The method of claim 4, wherein the quantization is based on an algebraic-codebook excited linear-predicted (ACELP) protocol.
 1. 8. The method of claim 4, wherein the first pulse stream is an excitation signal.
 1. 9. The method of claim 8, wherein the second signal is an impulse response.
 1. 10. A device for quantizing information, comprising:
 2. a generator that generates at least a first pulse stream containing a number of non-zero values and plurality of zero values; and
 4. a convolution device that convolves the first pulse stream with a second signal to produce a quantized signal;
 6. wherein the convolution device does not multiply at least one zero value of the first pulse stream with a respective value of the second signal.

1 11. The device of claim 11, wherein the convolution device does not multiply
2 a substantial number of zero values of the first pulse stream with respective values of the
3 second signal.

1 12. The device of claim 12, wherein the convolution device does not multiply
2 essentially all of the zero values of the first pulse stream with respective values of the
3 second signal.

1 13. The device of claim 13, wherein the convolution device only multiplies
2 the pulses in the first pulse stream with respective values of the second signal.

1 14. The device of claim 10, wherein the first pulse stream is an excitation
2 signal.

1 15. The device of claim 14, wherein the second signal is an impulse response.

1 16. The device of claim 14, wherein the excitation signal is based on a
2 multipulse-maximum likelihood quantization (MP-MLQ) protocol.

1 17. The device of claim 14, wherein the excitation signal is based on an
2 algebraic-codebook excited linear-predicted (ACELP) technique.

1 18. A method for generating a communication signal, comprising:
2 receiving a first pulse stream containing a number of pulses and plurality
3 of zero values;

4 convolving the first pulse stream with a second signal to produce the
5 communication signal, wherein the step of convolving does not multiply at least one zero
6 value of the first pulse stream with a respective value of the second signal.

1 19. The method of claim 18, wherein the step of convolving does not multiply
2 essentially all of the zero values of the first pulse stream with respective values of the
3 second signal.

1 20. The method of claim 19, wherein the step of convolving only multiplies
2 the pulses in the first pulse stream with respective values of the second signal.

1 21. The method of claim 20, wherein the first pulse stream is an excitation
2 signal and the second signal is an impulse response.

1 22. The method of claim 20, wherein the communication signal is a residual
2 signal.

1 23. A device for generating a communication signal, comprising:
2 a convolution device that convolves a first pulse stream with a second
3 signal to produce the convolved signal, wherein the first pulse stream at least one pulse
4 and a plurality of zero values; and
5 a speech processor that processes the convolved signal using a filter to
6 generate the communication signal;
7 wherein the convolution device does not multiply at least one zero value
8 of the first pulse stream with a respective value of the second signal.

1 24. The device of claim 23, wherein the convolution device does not multiply
2 essentially all of the zero values of the first pulse stream with respective values of the
3 second signal.

1 25. The device of claim 24, wherein the convolution device only multiplies
2 the pulses in the first pulse stream with respective values of the second signal.

1 26. The device of claim 25, wherein the first pulse stream is an excitation
2 signal and the second signal is an impulse response.

1 27. The device of claim 25, wherein the communication signal is a residual
2 signal.